ANALYSIS OF EARLY DROPPING MECHANISM FOR OPTICAL BURST SWITCHED NETWORKS

This dissertation was submitted in partial fulfillment of the requirement for the Degree of Master of Science in Telecommunications

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2009

93922

Abstract

Quality of Service in Optical Burst Switched Networks using Early Dropping Mechanism with Different Network Characteristics

Keywords: Optical Burst Switching (OBS), Absolute Quality of Service (QoS), Early Dropping Mechanism, Dense Wave Length Division Multiplexing (DWDM).

Optical Burst Switching is a promising bufferless DWDM switching technology that can potentially provide high wavelength utilization. Quality of Service support has become an important issue in OBS networks. There are two models to guarantee QoS in OBS networks. Those are relative QoS guarantee and absolute QoS guarantee. Most existing schemes are based on relative QoS model and in those models the service levels can be defined relative to the service requirements of another class of traffic. In absolute QoS model it provides a bound for loss probability of the guaranteed traffic. This kind of hard guarantee is essential to support applications with bandwidth constraints. Further efficient admission control and recourse provisioning mechanisms will enhance the service of absolute QoS model to guarantee the service requirements in the OBS networks. Early dropping mechanism is proposed to maintain the dropping probability in Absolute QoS model in OBS networks. Due to the bufferless nature of the OBS core nodes, the early dropping mechanism computes the intentional dropping probability based on measured , online loss probability. In early dropping mechanism it can be simply implemented by using a threshold value which is responsible to maintain the maximum acceptable loss probability. But in this mechanism the lower priority class of traffic suffers from high loss probability when higher priority Glasses exceed its threshold vales of loss probability. Early dropping by Span mechanism introduces a span of acceptable loss probabilities rather than using one threshold value andthis mechanism has improved QoS guarantee in higher priority classes of traffic while reducing the loss probability of lower priority classes as well. Further the performance of this mechanism can be

applied in a dynamic wave length assigning network in order to guarantee the absolute QoS with efficient recourse provisioning.